TLT-8A GPS/GSM Car Tracker

Instruction Manual V1.0

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Chapter one Preface

I. Overview

TLT-8A is a perfect combination of GSM and GPS technologies. The advanced technologies of the product in GSM and GPS fields are verified by its accurate dimension and simple appearance. It represents a typical design integrating the communication product and GPS positioning.

We provide professional safety-guarding and car-positioning products and solutions.

Before you use the product, please take some time and go through this instruction manual to understand operational details and receive better services.

II. Notice

1. Please read the instruction manual carefully and operate the product properly to avoid any trouble.

2. It is recommended to install the product in a professional automobile workshop to ensure operating safety and concealment of installation.

3. The instruction manual is only for your reference. In case of any difference between the manual and the actual product, the latter shall prevail.

4. Product parameters and functions are subject to upgrade without notice. In case of any question, please contact V-SUN or your distributor.

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Chapter Two Device Description

I. Brief Introduction

TLT-8AGPS/GSM is a car positioning and tracking device based on GPS technology and GSM/GPRS technology. It receives the latitude and longitude of the user's location through cell phone messages and then locates the tracker on Google Map or other digital map software; or positioning data is uploaded by the tracker to the specified server through GPRS, and the user may search the real-time position and historical track of the tracker on the internet.

TLT-8AGPS/GSM car tracker applies to motorcycles, electric golf carts and private cars. The product with built-in antennae integrated is easy to install. With practicability of the devices and fineness, this device is also a perfect combination of elegant models and high performance.

II. Product characteristics

1. Built-in high-performance GPS chipset enables the product to provide accurate positioning in the event of weak signal and to work normally in urban area, valleys or other sight-limited districts.

2. Built-in GSM/GPRS model supports GSM900/1800MHz (850/1900 MHz), thus it can work throughout the world.

3. It supports SMS communications or GPRS TCP connection, and receives position information through cell phone message or used to look into movement track on internet.

4. It provides such functions as SOS, fuel/electricity shut-off, warning by cutting off external power wire, geo-fence function, Overspeed warning, historical data upload, parking throttle upload and moving vehicle tracking timing upload.

5. It has power-saving function and its waiting call time is improved in electricity-saving mode.

6. It is equipped with highly reliable electric circuit design and complies with electronic industry standard.

III. Usage

1. Specifications

Hardware	Parameter
GSM module	MTK GSM/GPRS chipset GSM 900/1800 double frequency , or GSM 900/1800/850/1900 four frequency (optional) Supports TCP protocol
GPS chip	GPS chip set with high sensitivity
GPS sensitivity	-160dBm
GPS frequency	L1,1575.42MHz
Code	C/A Code

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Channel	**50-channel, omnibearing tracking**
Position accuracy	**<2.5m,CEP**
Speed accuracy	**0.1m/s**
Time accuracy	**1us and synchronous with GPS time**
Coordinates	**WGS-84**
Reacquisition	**0.1s on average**
Hot start	**1s on average**
Warm start	**30s on average**
Cold start	**32s on average**
Altitude Limit	**Maximum 18,000 meter (60,000 feet)**
Velocity limit	**Maximum 515m/s (1000 knot)**
Acceleration Speed limit	**Less than 4g**
Working temperature	**-25℃to 70℃**
Humidity	**5%~95% non-concretion**
Dimension	**88mm×51mm×19mm**
Voltage	**12-24V**

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2. Product appearance

1. Product general view

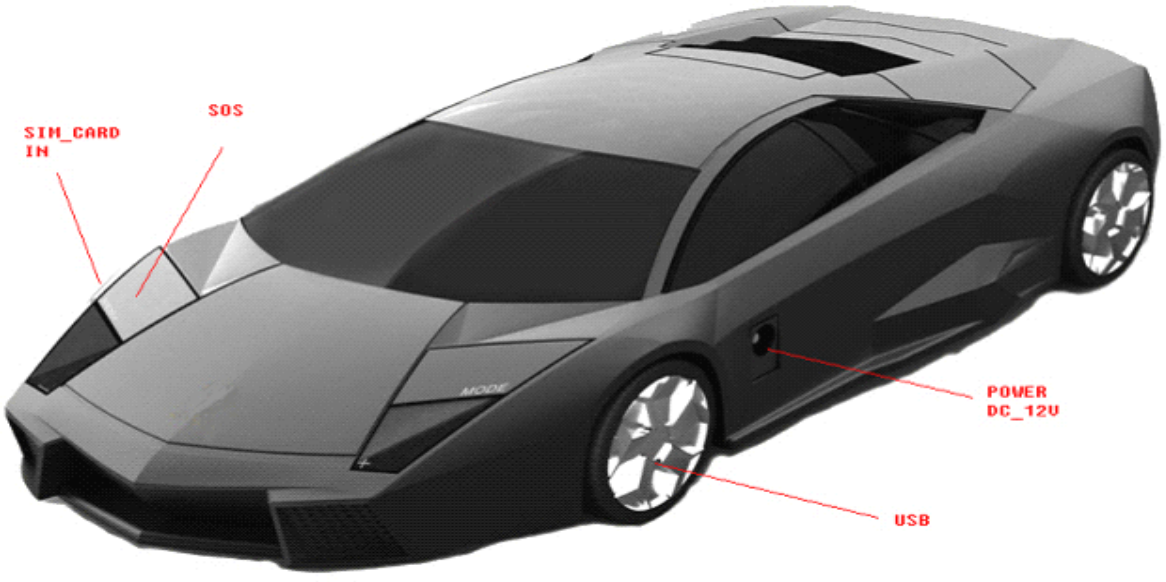

Figure 1

3. LED status description

3.1 Green LED ---- GPS status indicator

Status	Description
Off	GPS unavailable
Quick flash	GPS available

3.2 Blue LED ---- GSM status indicator

Status	Description
Quick flash	No SIM card or GSM network
Flash once every 8s	GSM works normally

3.3 Red LED ---- charge indicator

Status	Description
Normal light	Under charging
Weak light	Charging completed

4. Product installation

4.1 SIM card installation

a. Select SIM card

●You can use SIM card provided by local mobile operators, or use a small card to maintain the integrity appearance of the product.

●It supports SMS/GPRS function and has enough balance.

b. Open SIM card cover with a screw, and insert SIM card into its groove and lock it.

4.2 Power wire

General view of external power wire.

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Figure 2

5. Product accessories

1. TLT-8AGPS/GSM Car Tracker
2. Power wire
3. Instruction manual (CD)

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Chapter Three Initial Use and Model Description

After reading brief introduction to the product, you must know how to install the product. Then it comes to product's use.

Firstly, as the user of such product, you need to pre-store telephone number before performing instruction operation on the device. Telephone number is pre-stored as follows:

Format: *new password 4-20digits*user password 4 digits *sequence (1-3) **

For example: *13900000000*0000*1**

Description: If TLT-8Areceives the instruction and returns confirmation message "SET USER NUMBER (1-3) OK", then pre-stored number will be set successfully.

Note: 1. Initial password for the device is 0000.

2. The device can pre-store 3 telephone numbers at most.

3. The instruction also applies to new number which covers existing number. For example, A is the first pre-stored number. If B also sends instruction to set the first pre-stored number, number of B will substitute number of A and become the first pre-stored number.

4. Any number not prestored cannot be used to dial or connect device end telephone but can send message instruction.

I. Working mode of device

The product has the following two working modes: SMS mode (message point to point) and GPRS online mode.

1. If the user only wants to inquire for vehicle position (longitude and latitude) with cell phone, corresponding address on Google map or control fuel cutoff/power failure with cell phone, please select SMS mode.

2. If the user wants to monitor vehicle real-time status and inquire for its historical track, please select GPRS real-time online mode.

II. Switchover between the two modes

The following instruction may be used to switch over between the two modes.

Message (SMS) point-to-point mode:

Instruction format: 700+user password (4 digits)

For example: 7000000

Description: When TLT-8Areceives the instruction, it will automatically switch to SMS mode. After success, it will return confirmation message "SET MODE OK, CURRENT MODE: SMS P2P".

GPRS online working mode:

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Instruction format: 710+user password (4 digits)

For example: 7100000

Description: When TLT-8A**receives the instruction, it will automatically switch to GPRS mode. After success, it will return confirmation message "SET MODE OK, CURRENT MODE: GPRS".**

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Chapter Four Application and Operation in SMS Mode

Most instructions are operable under both SMS mode and GPRS mode unless otherwise specified.

1. Instruction to change user password

Instruction format: 777+new password (4 digits) + old password (4 digits)

For example: 77712340000

Description: The terminal receives the instruction and return confirmation message after success. The message is “SET USER PASSWORD OK”.

2. Instruction to request single positioning

Instruction format: 666+user password (4 digits)

For example: 6660000

Description: When TLT-8Areceives the instruction, it will return current positioning message after success. Data message format is as follows:

Lat: latitude direction (+/-) latitude value (accurate to 5 digits after decimal point)

Long: longitude direction (+/-) longitude value (accurate to 5 digits after decimal point)

Speed: Speed KM/H (accurate to 2 digits after decimal point)

Direction: course direction (accurate to 2 digits after decimal point)

Date: YYYY-MM-DD

Time: HH:MM:SS (Greenwich Mean Time)

BS: Base station information

FIX: positioning status (A/V) (A stands for Available, V stands for Unavailable)

ID: IMEI (device IMEI number)

STATE: message status

Example of valid data message :

Lat: +22.50500

Long: +114.01000

Speed: 0.00KM/H

Direction: 315.00

Date: 2008-04-25

Time: 16:39:45

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BS: 25ee0dff

Fix: A

ID: 353686009002030

STATE: SMS

Note: 1. In case of cold start and GPS is not positioned, invalid message will be returned: GPS UNAVAILABLE, PLEASE TRY AGAIN LATER.

2. Inquire for position corresponding to latitude and longitude on Google map.

Search for obtained latitude and longitude on http://maps.google.com to view detailed position corresponding to latitude and longitude.

For example, when sending instruction “666+ passwords” to terminal, the following message will be obtained.

Lat: +22.50500

Long: +114.01000

Speed: 0.00KM/H

Direction: 315.00

Date: 2008-04-25

Time: 16:39:45

BS: 25ee0dff

Fix: A

ID: 353686009002030

STATE: SMS

Then, search for +22.50500 +114.01000 on http://maps.google.com to view detailed position (as shown in the following graph).

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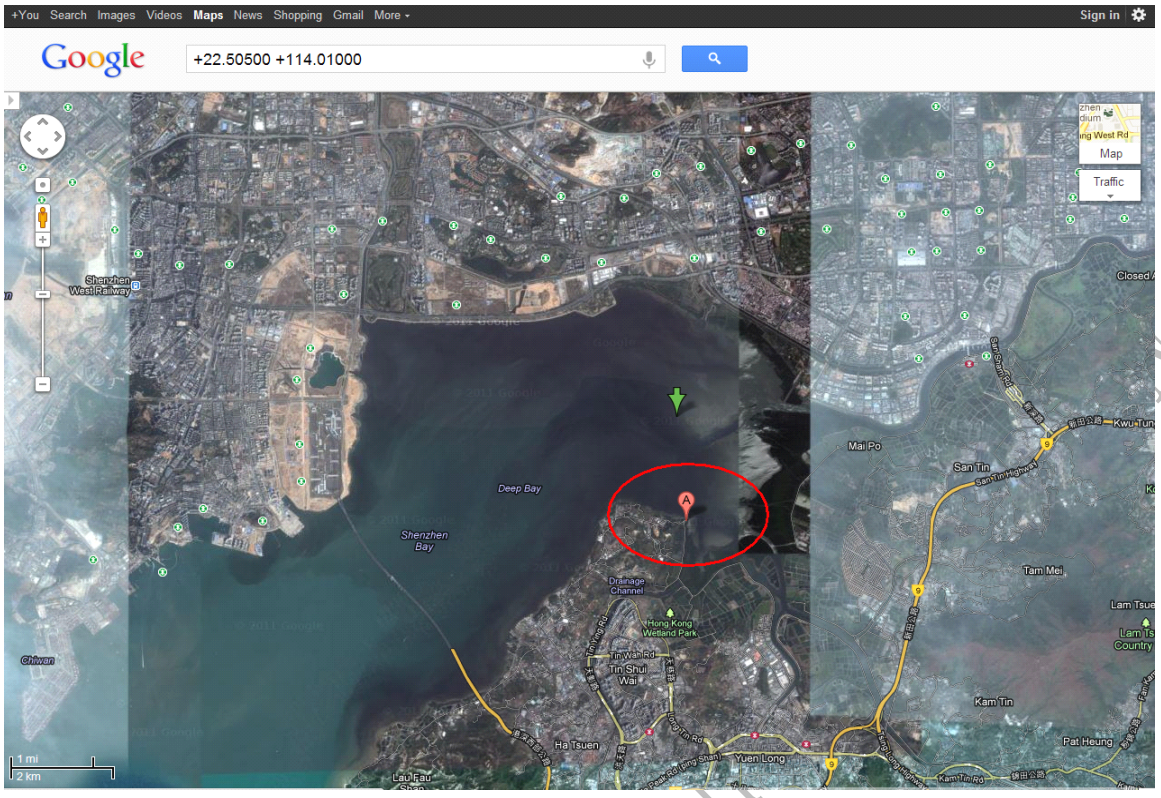

Figure 4

You can also input position data into local map software on PDA or navigation device to view the position (as shown in the following graph)

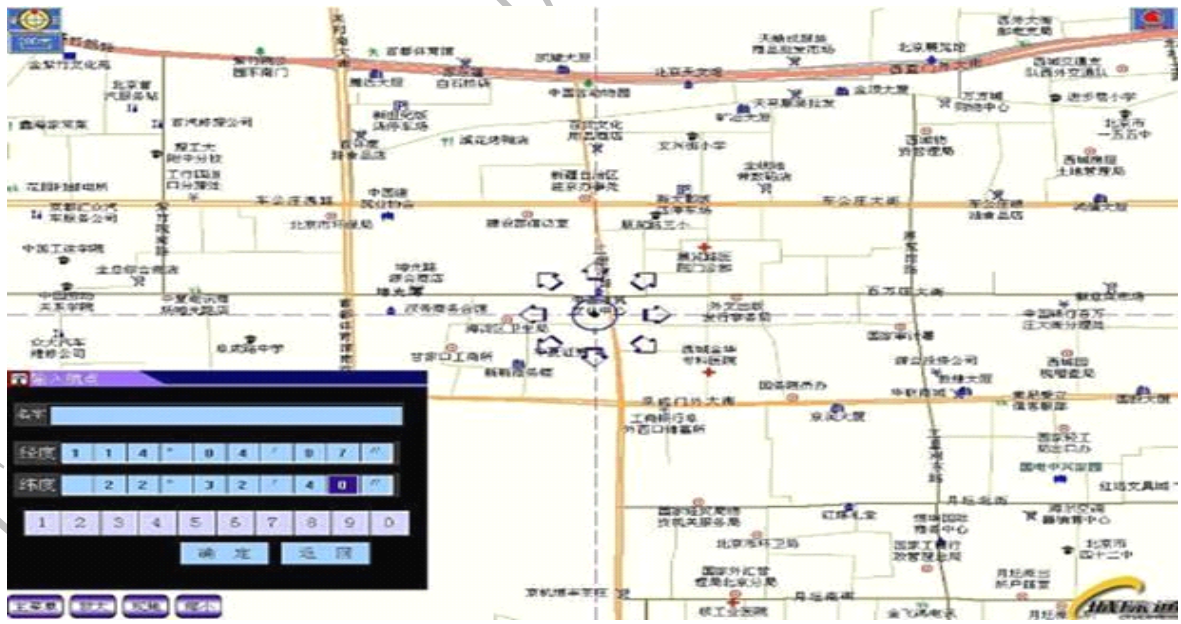

Figure 5

3. Instruction to return Chinese address for single positioning

Instruction format 1: 667+user password

For example: 6670000

Instruction format 2: 667+user password+MAP

For example: 6670000MAP

Instruction format: 667+user password+MAP,WWW,HHH,ZZ

For example: 6670000MAP,640,480，15

Description:

1. When the device receives instruction 1, it will immediately read GPS information and return Chinese address information to the sending number.

For example: Within 31 meters southwest of Shangjuhaoyuan East Gate on Jingtian East Road in Shenzhen, Guangdong.

2. Send instruction 2 and a website will be returned. Open it to view current position and screenshot:

For example:
http://www.gps068.com/cngps/mapaddr.asp?lng=114.09998&lat=22.55709&z=15&w=240&h=320

3. Send instruction 3 to user-defining size and zoom of screen shot. WWW is picture width, HHH is picture height and ZZ is zoom level. (Note: WWW value and HHH value are less than 1000. It is recommended that ZZ value is 1-20. Adjusting ZZ is to adjust zoom level of screenshot). For example,
http://www.gps068.com/cngps/mapaddr.asp?lng=114.09998&lat=22.55709&z=15&w=240&h=480

4. Default size of screenshot is 240*320.

5. The instruction is only valid in China mainland.

4. Instruction to return Google map screenshot link for single positioning

Instruction format 1: 668+user password

For example: 6680000

Instruction format 2: 668+user password, WWW, HHH, ZZ

For example: 6680000, 999,999,15

Description: 1. After the device receives instruction 1, it will read GPS information immediately and return Google map screenshot address of local position. Open the website to view position information.

Example of screenshot website is as follows:

http://maps.google.com/maps/api/staticmap?center=22.557118,114.100010&zoom=15&size=240x320&markers=22.557118,114.100010&sensor=true

2. Send instruction 2 to user-defining picture size. WWW stands for picture width, HHH stands for picture height and ZZ stands for zoom level (Note: WWW value and HHH value shall not exceed 1000 and ZZ value is

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recommended to be 1-20).

3. Default size of screenshot is 240*320.

5. Instruction to return map link for single positioning

Instruction format: 669+user password

For example: 6690000

Description: When the device receives the instruction, it will read GPS information immediately and return Google map link of local position to the number. User can use PDA or smart phone to view local position on Google map.

Website example:

http://maps.google.com/maps?f=q&hl=en&q=22.554765,114.104716&ie=UTF8&z=16&iwloc=addr&om=1

Note: If the server cannot be connected after the above stated 3 instructions (667/668/669) are sent or due to other cause, the following messages will be returned.

1) If the server cannot be connected, it will return: SERVER BUSY, PLEASE TRY AGAIN LATER.

2) If GPS is not available, it will return GPS UNAVAILABLE, PLEASE TRY AGAIN LATER.

3) When you use Google map in China mainland, there may be deviation between the positioned position and the actual position in special cases.

6. Instruction to report on time everyday

Instruction format: 665+user password+HHMM

For example: 66500001022

Close timing report: 665+user password+OFF

For example: 6650000OFF

Description: After receiving the instruction, the device will immediately return confirmation information: SET DAILY REPORT OK.

Note: 1. Using this instruction, the user may receive a piece of positioning information at a stated time, with its format as shown in “Single positioning request”.

2. HH stands for hour with defined range of [00, 23]. MM stands for minute with defined range of [00, 59].

7. Set the number of returned base stations

Instruction format: 55X+user password (4 digits)

For example: 5510000

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Description: After receiving the instruction, the device will immediately return confirmation information after success: SET BASESTATION OK.

Note: 1. X is base station number with value range of [0, 6].

2. If X is 0, position information contains no base station information.

3. Default number of base station is 1.

8. Read base station information

Instruction format: 111+user password (4 digits)

For example: 1111234

Description: After receiving the instruction, the device will return the following message to the sender after success.

Data format: BS: base station information 1, base station information 2, base station information …n

9. Instruction for calling switch

1>Instruction format of calling off: 150+user password

For example: 1500000

2>Instruction format of calling on: 150+user password

For example: 1510000

Description: 1. After receiving instruction of calling off, TLT-8Awill turn off calling function (including SOS, power failure warning calling, fence warning calling, overspeed warning) and return confirmation message “SET VOICE CALL: OFF”.

2. After receiving instruction of calling on, TLT-8Awill turn on calling function (including SOS, power failure warning calling, fence warning calling, overspeed warning) and return confirmation message “SET VOICE CALL: ON”.

Note:

1. In case of calling off, when SOS, power failure warning, fence warning or overspeed warning occurs, message will be returned instead of call.

2. Default setting is calling function on.

10. Instruction for incoming call restriction switch

Instruction for incoming call restriction on: 170+user password

For example: 1700000

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Instruction for incoming call restriction off: 171+user password

For example: 1710000

Description: After success to receive instruction for incoming call restriction on (170), TLT-8Awill return confirmation message: SET UNLIMITED MODE OFF OK. At this time, the device can only receive incoming call from 3 prestored numbers. Incoming call from non-prestored number will be hung up without other response.

After success to receive instruction for incoming call restriction off (171), TLT-8Awill return confirmation message: SET UNLIMITED MODE ON OK. The device can answer incoming call from any cell phone.

Note: Default setting is incoming call restriction on.

11. Phone positioning function

Description: If incoming call is from one of the three prestored phone numbers and it is hung up after ringing for 2-5 times, the device will send position information with the same format as “request for single positioning” to the incoming call number. The information status is STATE: CALL. If non-prestored phone number calls in, it will be hung up without other response.

12. Emergency alarm (SOS)

Description: Press SOS key for over 3 seconds to send positioning information with information format returned from “request for single positioning” to the three prestored phone numbers. Information status is STATE: SOS. At the same time, the first prestored phone number will be called. If it fails (the phone is turned off or cannot be connected), the second and the third phone number will be called in sequence.

Note: If calling status is off, message will be sent to prestored user instead of calling him.

13. Geo-fence function

Geo-fence of the device has the following two modes: round geo-fence and square geo-fence.

Round geo-fence takes the set coordinates as center of circle and uses the set semi-diameter to determine fence scope. Square geo-fence uses 4 known latitude and longitude points to determine a square fence.

When the function is activated, once TLT-8Asteps beyond fence scope, it will send positioning information with the information format returned by above stated “request for single positioning” to the three prestored numbers. Information status is STATE: OS. At the same time, the first prestored phone number will be called. If it fails (the phone is turned off or cannot be connected), the second and the third phone number will be called in sequence.

When TLT-8Aenters fence scope again, it will send positioning information with information format returned from “request for single positioning” to the three prestored number immediately. Information status is STATE: RS. At the same time, the first prestored phone number will be called. If it fails (the phone is turned off or cannot be connected), the second and the third phone number will be called in sequence.

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13.1 Setting of round geo-fence scope

The user may at his discretion select the following formats to operate according to the input different formats of coordinates.

Instruction format 1: 003 + user pass word E/Wdddmm.mmmmN/Sddmm.mmRzzz.z

For example: 0030000E11406.0024N2233.4230R0.1

When receiving the instruction, TLT-8Awill return confirmation message to the sender: SET GEO-FENCE OK and turn on geo-fence function.

Description: E: east longitude; W: west longitude; N: north latitude; S: south latitude. South latitude. Here E and N are used to explain as an example. Please select corresponding coordinate formats in accordance with actual geographic position. Each section’s meaning of the example is as follows:

Edddmm.mmmm is longitude information with degree and minute as unit, among which ddd stands for degree and mm.mmmm stands for minute (4 digits after decimal point is maintained and zero cannot be omitted).

Nddmm.mmmm is latitude information with degree and minute as unit, among which dd stands for degree and mm.mmmm stands for minute (4 digits after decimal point is maintained and zero cannot be omitted).

zzz.z is radius with definition domain of [0.1, 999.9] and unit of KM.

Instruction format 2: 004 + user password E/Wddd.dddddN/Sdd.ddddRzzz.z

For example: 0040000E114.10004N22.55705R999.9

When receiving the instruction, TLT-8Awill return confirmation message to the sender: SET GEO-FENCE OK and turn on geo-fence function.

Description: E: east longitude; W: west longitude; N: north latitude; S: south latitude. T Here E and N are used to explain as an example. Please select corresponding coordinate formats in accordance with actual geographic position. Each section’s meaning of the example is as follows:

Eddd.ddddd is longitude information with degree as unit, among which ddd.ddddd stands for degree (5 digits after decimal point is maintained and zero cannot be omitted).

Ndd.ddddd is latitude information with degree as unit, among which dd.ddddd stands for degree (5 digits after decimal point is maintained and zero cannot be omitted.

zzz.z is radius with definition domain of [0.1, 999.9] and unit of KM.

Instruction format 3: 005 + user password Rzzz.z

For example: 0050000R0.1

Description: After receiving the instruction, TLT-8Awill extract current longitude and latitude information as fence coordinate from the latest GPS data and takes R value as radius. It also turns on geo-fence and send

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confirmation message to the sender after success: GE0-FENCE ON.

Note: zzz.z is radius with definition domain of [0.1, 999.9].

1>Instruction to turn on round geo-fence

1. Turn on geo-fence: 211 + user password

After receiving the instruction, TLT-8Awill return confirmation message: GEO-FENCE ON.

2>Turn off round geo-fence instruction: 210 + user password

After receiving the instruction, TLT-8Awill return confirmation message: GEO-FENCE OFF.

Note: 1. Fence radius shall not exceed its defined domain. When decimal digit is 0, please add 0. For example, when R is 1, please enter 1.0.

2. If calling status is off, message will be sent to prestored user instead of calling him.

3. Degree and minutes is of sexagesimal system, i.e., 1d=60m.

13.2 Setting of square geo-fence scope

Instruction format: 006 + user password + GX, IO/I/O, E/W longitude upper limit + N/S latitude upper limit, E/W longitude lower limit + N/S latitude lower limit.

For example: 0060000G1,IO,E114.10004N22.55705,E115.10006N23.55706

After receiving the instruction, TLT-8Awill return confirmation message: SET SQUARE GEO-FENCE GX(IO/I/O) OK.

Description: GX is geo-fence X, whose value range is [1, 16]. IO means warning for both outgoing and incoming fence; I means warning for incoming fence; O means outgoing fence. Longitude and latitude value take degree as unit. 5 digits after decimal point shall be reserved and 0 shall not be omitted.

IO means warning for both outgoing and incoming fence; I means warning for incoming fence; O means outgoing fence.

Note:

(1) After setting is completed, fence is turned on automatically. Now, default fence type is IO, i.e., warning for both outgoing and incoming fence.

(2) If calling status is off, message will be sent to prestored user in SMS mode instead of calling him.

(3) Value set by the instruction is not subject to power off or switch on/off until change instruction or restoration operation is received again.

(4) After restoration, longitude value is indicated by 0. Fence is in shutoff status.

1>Turn on square geo-fence

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Instruction format to turn on all square geo-fence: 311 + user password

For example: 3110000

Instruction format to turn on single square geo-fence: 311 + user password +GX

For example: 3110000G5

Description: The instruction is used to turn on all square geo-fence and turn on single square geo-fence. GX stands for geo-fence X, whose value range is [1, 16]. After receiving the instruction, TLT-8Areturns confirmation message: SET ALL SQUARE GEO GEO FENCE: ON. When turning on single square geo-fence, it returns confirmation message: SET SQUARE GEO FENCE GX: ON.

2>Instruction to turn off square geo-fence

Instruction format to turn off all rectangular geo-fence: 310 + user password

For example: 3100000

Instruction format to turn off single rectangular geo-fence: 310 + user password +GX

For example: 3100000G5

Description: The instruction is used to turn on all rectangular geo-fence and turn on single rectangular geo-fence. GX stands for geo-fence X, whose value range is [1, 16]. After receiving the instruction, TLT-8Areturns confirmation message: SET ALL SQUARE GEO FENCE: OFF. When turning on single square geo-fence, it returns confirmation message: SET SQUARE GEO FENCE GX: OFF.

Note: If multiple set square fences give warning at the same time. G1 will call and G2, G3, G4… will send position message instead of calling. As for the ex-factory configuration or in case of restoration, the status is RS by default.

Notice: Above stated geo-fences are optional. When the device receives geo-fence setting instruction, geo-fence function will be activated automatically. When geo-fence function is activated again after turned off, previous setting remains valid.

14. Overspeed alarm

Instruction format: #122#user password#X##

For example: #122#0000#250##

After receiving the instruction, TLT-8Awill return confirmation message: SET RATE LIMIT: 250.

Description: 1. X is speed benchmark value, which is an integral number. Its unit is KM/H with defined domain of [0, 999]. When X=0, overspeed warning function is turned off.

2. After the function is activated, when travel speed exceeds set speed, the device will send position information with information format returned from “request for single positioning" to the three prestored numbers immediately. Information status is STATE: OVERSPEED. It will also call the first prestored number immediately.

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If it fails (the phone is turned off or cannot be connected), the second and the third phone number will be called in sequence. Then, if travel speed is less than set speed, the device will send position information with information format returned from “request for single positioning" to the three prestored numbers immediately. Information status is STATE: SAFE SPEED. It will also call the first prestored number immediately. If it fails (the phone is turned off or cannot be connected), the second and the third phone number will be called in sequence.

15. Mileage statistics function

15.1 Instruction to turn off mileage statistics

Instruction format: 140+user password

For example: 1400000

Description: After receiving the instruction, TLT-8Awill return confirmation message: SET MILEAGE STATISTICS OFF OK. Mileage statistics function will remain in turnoff status.

15.2 Instruction to turn on mileage statistics

The instruction can be used to set the interval of timing report on total mileage.

Instruction format: 141+PW+<I+X>

Description: I is delimiter, X is mileage report interval with unit of minute.

If X is0, the device will return SET MILEAGE STATISTICS ON OK, REPORT DISABLE. If X is more than 0, the device will return SET MILEAGE STATISTICS ON OK, REPORT INTERVAL：X.

Example 1: 1410000. It only turns on mileage statistics function and does not change mileage report interval.

The device will return: SET MILEAGE STATISTICS ON OK。

Example 2: 1410000I0. It turns on mileage statistics function and stops mileage timing report function.

The device will return: SET MILEAGE STATISTICS ON OK, REPORT DISABLE

Example 3: 1410000I30. It turns on mileage statistics function and sets total mileage timing report interval as 30 minutes.

The device will return: SET MILEAGE STATISTICS ON OK, REPORT INTERVAL：30

Note:

Mileage report data format: +IMEI+Epoch+Mileage+CS++\r\n

For example, if the device is IMEI 为 135790246813555, current time is GMT 2011-12-14 12:04:12, current total mileage is 15000 meters, then the following data are uploaded:

+135790246813555+4EE890A1+15000+77++\r\n

Description: 1. IMEI: device IMEI number;

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2. Epoch: GMT time, total seconds from 00:00:00, January 1, 1970;

3. Mileage: total mileage;

4. CS: Domain value of left and right characters from the first "+" to the first "+" in front of CS, both included.

15.3 Instruction to set initial mileage value (zero clearing)

Instruction format: 142+PW<+M+X>

Description: M is delimiter, X is initial mileage value with unit of meter. If M is 0, the device will return:

MILEAGE STATISTICS RESET OK. If M is more than 0, the device will return SET TOTAL MILEAGE OK,CURRENT：X.

For example: 1420000. The device will return MILEAGE STATISTICS RESET OK.

1420000M0. The device will return MILEAGE STATISTICS RESET OK.

1420000M1000. The device will return SET TOTAL MILEAGE OK,CURRENT：1000.

15.4 Instruction to read current mileage

Instruction format: 143 + user password.

For example: 1430000

Description: After receiving the instruction and confirming that user password is correct, the device will read current total mileage value and return the following message to the number which sends the instruction: MILEAGE STATISTICS:ON，CURRENT TOTAL MILEAGE:XX (XX means current mileage value with unit of M).

Note: 1. If zero clearing is not performed, the mileage read is accumulated value;

2. Mileage statistics is off by default.

16. Tow truck alert function

1>Turn on tow truck alert: 181 + user password + TX

For example: 1810000T10

2>Turn off tow truck alert: 180 + user password

For example: 1800000

Description: X is continuous vibration time, whose range is [0, 100] with unit of second.

After receiving the instruction, TLT-8Awill return confirmation message: TOWED ALERT ON. Now, tow truck alert function has been activated. While ACC is turned off, if it is detected that the device continuously vibrates for X seconds, the device will call the first prestored phone number. If it fails (the phone is turned off or

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cannot be connected), the second and the third phone number will be called in sequence. Finally, the device will send positioning information returned from “request for single positioning” to the prestored numbers. Information status is STATE: TOWED.

Note: 1. Default setting is tow truck alert on with vibration time of 0 seconds.

2. If the function is not needed, the user can send instruction 180 to turn off the function. If the function is not turned off, vehicle vibration will trigger alert after parking.

17. Low battery alarm

In case of too low working voltage (electricity quantity), TLT-8Awill send position information with information format of returned “request for single positioning” to the prestored three numbers. Information status will be updated to STATE: LP. The information will be sent for 3 times with an interval of 1 minute.

18. Instruction to switch on/off ACC status prompt

1>Instruction to switch on ACC status prompt**: 091 + user password**

For example: 0910000

2>Instruction to switch off ACC status prompt**: 090 + user password**

For example: 0900000

Description: After receiving instruction 091 and confirming that user password is correct, TLT-8Awill send confirmation message to the sender “ACC STATE PROMPT: ON”. When ACC is being switched on/off, the device will send current position information to all prestored numbers immediately: “AUTO START/AUTO STOP”.

After receiving instruction 090 and confirming that user password is correct, TLT-8Awill send confirmation message to the sender “ACC STATE PROMPT: OFF”. When ACC is being switched on/off, TLT-8Awill not send any data information.

Note: Default setting is ON.

19. ACC detection and movement warning

1>Instruction to set movement warning area: 008 + user password + Rzzz.z

For example: 0080000R100.0

2>Instruction to turn off movement warning: 009 + user password

For example: 0090000

After receiving instruction 008, TLT-8Awill return confirmation message: SET MOVE RADIUS OK. After receiving instruction 009, TLT-8Awill return confirmation message: MOVE DEFENCE: OFF.

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Description: 1. zzz.z is mobile warning area radius, whose defined domain is [0.1, 999.9] with unit of KM.

2. After mobile warning area is set successfully, if TLT-8Adetects that ACC status is switched from on to off, the device will read current position information as origin of coordinates 3 minutes later. Whether GPS data is valid, the device will perform electronic area defence with zzz.z as radius.

While ACC is turned off, if TLT-8Adetects that the defence area is stepped beyond, it will send movement warning message to all prestored numbers in message mode. Information status is STATE: ACC OS (or upload current position information to the server in GPRS mode) and dial prestored number. (Whether to call is controlled by 150/151. After restoration, message is sent instead of calling).

When it enters defence area again after stepping beyond defence area, the device will also send message and call prestored phone (or upload position message in GPRS mode). Information status is ACC RS.

When TLT-8Adetects that ACC status is switched from off to on, movement warning function will be automatically cancelled. When ACC status is switched from on to off, movement warning function will be activated again.

20. Instruction to set GPS status

Message instruction may make GPS in three statuses: on/off/self-adapting. GPS is switched on when delivered from the factory or reset.

1>Instruction to turn on GPS

Instruction format: 222 + user password (4 digits)

For example: 2220000

Description: After receiving the instruction, TLT-8Awill return confirmation message: GPS ON OK.

2>Instruction to turn off GPS

Instruction format: 333 + user password (4 digits)

For example: 3330000

Description: After receiving the instruction, TLT-8Awill return confirmation message: GPS OFF OK.

3>Instruction for self-adapting GPS

Instruction format: 100 + user password

For example: 1000000

Description: After receiving the instruction, TLT-8Awill return confirmation message: VIBRATION SENSOR ON OK.

Note: 1. If built-in vibration sensor detects device vibration, it will turn on GPS. If it does not detect vibration within 5 minutes, GPS will be turned off automatically.

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2. If the car travels on the highway or the flat road for a long time, GPS may remain in sleep status rather than awake for a long time. If the user want to position and track the real-time position at that time, please send "222 + user password" to restart GPS.

21. Super electricity-saving mode

Super electricity-saving mode means that position data upload is delayed when the car is driving; when no upload of data, it will enter Shutoff mode (close GPS and GSM modules) for the purpose of saving power and prolonging waiting call time.

1> Vibration control start instruction
Format: 121+passwork 4 digits
For example: 1210000
Description: TLT-8A receives this instruction and then return confirmation message: OPEN VIB MODE. After entering the mode, the device judges whether it enters shutoff mode through vibration sensor. If it does not detect vibration within 5 minutes, the device will enter shutoff mode. If arriving at the set "shutoff mode upload interval", the device will automatically start and upload the data and then enter again into shutoff mode.
Note: 1. In shutoff mode, if SOS alarm and power failure alarm, the device will immediately start and upload SOS/DEF status data, after upload, it will enter again into shutoff mode.
2. In shutoff mode, if detecting the external vibration, the device will start immediately and then work normally; if no vibration within 5 minutes, it will enter again into shutoff mode.
3. Default vibration control mode is ON.

2> Vibration control shutoff instruction
Format: 120+user password
For example: 1200000
Description: TLT-8A receives this instruction and then return confirmation message: CLOSE VIB MODE. After entering the mode, the device judges whether it enters into shutoff status through ACC. If ACC is ON, the device will be in normal working mode; if ACC is OFF, it will enter into shutoff mode. If arriving at the set "shutoff mode upload interval", the device will automatically start and upload the data and then enter again into shutoff mode.
Note: 1. In shutoff mode, if SOS alarm and power failure alarm, the device will immediately start and upload SOS/DEF status data, here, if ACC is ON, it will enter into normal working mode; if ACC is OFF, it will enter again into shutoff mode.
2. In shutoff mode, if detecting the external vibration, the device will start immediately; after woken up, it will work normally in the event that ACC is ON, and it will enter again into shutoff mode in the event that ACC is OOF.

22. Shutoff mode upload interval setting instruction

Format: #819#user name#sampling interval X##
For example: #819#0000#10##
SUPER POWER-SAVE MODE DISABLED；
Description : X represents sampling interval scope with domain 【10，2000】and unit: minute.
If sampling interval is set as zero, the device will close super electricity saving mode and enters into normal working mode and return to the number sending such instruction such message as : SUPER POWER-SAVE MODE DISABLED；

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If the sampling interval is set as other than zero, the device receives this instruction and then return the confirmation message as: GPRS REPORT SAMPLING 2 OK. After success to set the instruction, if the device enters into shutoff mode will start according to the set interval, and then it will send the message and enter again into shutoff mode after completing sending message.

23. Instruction to change time zone setting

Instruction format: 896 + user password 4 digits + D + NN

For example: 8960000E08

Description: After receiving the instruction, TLT-8Awill return confirmation message: TIME ZONE SET OK,CURRENT：E8.

1. D takes E or W to indicate east or west time zone respectively. N takes a 2-digit number (1-12) to indicate time zone number.

2. After success to set 896000E08, all time-related data will be GPS time plus 8. After success to set 896000W07, all time-related data will be GPS time minus 7.

3. Default value is Greenwich Time (UTC).

Note: When the instruction is set, data upload time in GPRS mode will not change. If the user wants to change data upload time, please refer to instruction 897 in GPRS mode in the next chapter.

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Chapter Five Application and Operation in GPRS Mode

Send “710 + user password” to switch to GPRS mode. In the mode, TLT-8Acan also pre-store three phone numbers (No.1, No.2 and No.3), a set of TCP/IP server IP address and port number, 4-digit GPRS password and an APN number at GPRS access point. **Instructions in SMS mode can also be used in GPRS mode.**

1. Change GPRS user name

Instruction format: #801#user password# new user name##

For example: #801#0000# username##

Description: After receiving the instruction, TLT-8Awill return confirmation message: CHANGE USERNAME OK.

2. Change GPRS service password

Instruction format: #802#user password# new service password# old service password##

For example: #802#0000#1111#0000##

Description: After receiving the instruction, TLT-8Awill return confirmation message: CHANGE PASSWORD OK.

3. Set GPRS access point (Access Point Name)

Instruction format 1: #803#user password#APN##

For example: #803#0000#CMNET##

Instruction format 2: #803#user password #APN#APN user name# APN password##

Description: After receiving the instruction, TLT-8Awill return confirmation message: SET GPRS APN OK.

Note: 1. As different GSM/GPRS service providers provide different APN, please select instruction format 1 or 2 in accordance with the APN provided by your local service provider.

2. APN is CMNET at the factory or after reset. APN is constituted by 3~35 characters which may be alpha, number, dot (.), underscore (_) or hyphen (-). APN user name and APN password are respectively constituted by 3~30 characters which may be numbers or alphas.

4. Set IP address and port

Instruction format: #804#user password # fixed IP address/ domain name #port##

For example: #804#0000#210.83.225.181#6998##，

Or #804#0000#www.gps068.com#6998##

Description: After receiving the instruction, TLT-8Awill return confirmation message: SET SERVER IP AND PORT OK.

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5. Set timing data upload

Timing data upload has the following two modes: traveling car tracking mode and turn-off mode. In accordance with different settings of GPS sampling time and upload quantity, data are intensively uploaded to display real-time trace with more detail in the event of traveling car. Fewer data are uploaded to save SIM flow charge as well as ensure some tracking effects in case of turnoff.

1>Timing upload mode for traveling vehicle tracking

Instruction format: #805# user password# sampling interval T# uploaded data quantity each time N##

For example: #805#0000#10#6##

Description: After receiving the instruction and confirming that user password is correct, TLT-8Awill send confirmation message to the sender “SET GPS SAMPLING TIME AND QUANTITY OK”.

Note: 1. Sampling time T takes second as unit, whose defined domain is [10, 59999]. Uploaded data item number N for each time has a defined domain of [1, 50].

2. If data is not sent to the server due to network problem or other cause, the data will be backed up automatically and sent to the server again after network resumes to normal. data status is AUTO.

3. If “uploaded data quantity N for each time” is 0, the device will turn off timing upload and send confirmation message to the sender: GPRS TIMER STOP.

2>Timing upload mode for parking throttle

Instruction format: #809# user password#X#Y##

For example: #809#0000#10#6##

Description: After receiving the instruction and confirming that user password is correct, TLT-8Awill send confirmation message to the sender “GPRS REPORT SAMPLING 2 OK”.

Note: 1. Sampling time X takes second as unit, whose defined domain is [10, 59999]. Uploaded data number Y for each time has a defined domain of [1, 50].

2. If data is not sent to the server due to network problem or other cause, the data will be backed up automatically and sent to the server again after network resume normal. Uploaded data format is as shown in position information of “immediately upload current position instruction” in GPRS mode and data status is AUTOLOW.

3. If “uploaded data quantity Y for each time” is set as 0, the device will turn off timing upload and send confirmation message to the sender: GPRS REPORT SAMPLING 2 STOP.

4. In the above two modes, 300 pieces of data may be backed up for complementary report for blind area. After exceeding 300 pieces, new data will automatically override former backup data.

5. When complementary data is sent, if there are lots of pieces of stored data, 50 pieces will be uploaded at one time. If data number is less than 50, all of them will be uploaded at one time. Current data will not be uploaded

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until all complementary data are sent.

After making the three basic settings as stated above, you can see running trace of your own car and monitor vehicle movement on product monitoring platform provided by the service provider.

6. Instruction to upload current position immediately

Instruction format: #806# user password##

For example: #806#0000##

Description: After receiving the instruction, TLT-8Awill send confirmation message to the first prestored number: “START GPRS UPLOAD” and send data in current storage to the server. Uploaded data status is SMS.

Upload format:

#IMEI number # user name # service password # status # data quantity

#base station information $ GPRMC……#base station information $ GPRMC……##

For example:

#123456789000001#SR-6869BE#0000#SMS#3

#25ee0dff$GPRMC,083945.180,A,2233.4249,N,11406.0046,E,0.00,315.00,251207,,,A*6E

#25ee0dff$GPRMC,083950.180,A,2233.4249,N,11406.0046,E,0.00,315.00,251207,,,A*6E

#25ee0dff$GPRMC,083955.180,A,2233.4249,N,11406.0046,E,0.00,315.00,251207,,,A*6E ##

Note: Status of immediately uploaded data format is SMS.

7. Phone upload

Description: When one of the three prestored phone numbers calls in and is hung up after ringing for 2-5 times, it will operate as “immediately upload current position” . Status prompt is CALL.

8. Emergency upload

Description: Press SOS key for more than 3 seconds, and the device will operate as “instruction to immediately upload current position”;the status indicates SOS. At the same time, it will call the first prestored number. If it fails (the phone is turned off or cannot be connected), the second and the third phone number will be called in sequence.

Note: If calling status is off, it will send position message to the server instead of calling the phone.

9. Low voltage upload

If working voltage of TLT-8Ais lower than the set value, and the device will operate “instruction to

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immediately upload current position" and add "LP" auxiliary attribute into data status to show current status. The information will be sent for 3 times with an interval of 1 minute.

10. Historical data upload function

In order to use the function in SMS mode, please switch to GPRS to set IP and APN.

1. Set historical data rewire

Instruction format: #807# user password #X##

For example: #807#0000#30##

Description: After receiving the instruction and confirming that user password is correct, TLT-8Awill set historical rewire sampling frequency as X. If X=0, the device will close historical data rewire. If X!=0, the device will take X seconds as interval to store received GPS data. After success, it will return confirmation message to the sender: SET SAMPLING OK.

Note: 1. X is historical rewire sampling frequency, whose defined domain is [0, 999] with second as unit.

2. Size of each data quantity is around 100B (BYTE).

3. Memory space distributed to historical data rewire is 864KB (BYTE) and stack override method is used to update data storage. If X=30, data for about 3 days will be rewired. If X=300, data for about 30 days will be rewired. When stored data reach 864KB, newly received data will override earlier data.

4. If power saving function is activated and TLT-8Aremains static for a long time, historical rewire will be automatically closed until TLT-8Ais wakened up and GPS is turned on.

2. Instruction to set historical data upload

1>Upload 24-hour historical rewire:

Instruction format: #808# user password #24##

For example: #808#0000#24##

Description: After receiving the instruction, TLT-8Awill return confirmation message: START UPLOAD 24H HISTORICAL REWIRE. It will send historical data rewired in the past 24 hours to the server with the same format as position information mentioned in "instruction to immediately upload current position" and information status is SOTRAGE.

2>Read all data rewires:

Instruction format: #808#0000##

Description: After receiving the instruction, TLT-8Awill return confirmation message: START UPLOAD ALL HISTORICAL REWIRE. It will send all historical data rewired in storage area to the server with the same format as position information mentioned in "instruction to immediately upload current position" and information status is

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SOTRAGE.

11. Switch to upload invalid data

Instruction format: 08X + user password 4 digits

Function description: After receiving the instruction, TLT-8Awill be able to determine whether to upload invalid data in accordance with X value.

If X=1, the device will turn on the function of uploading invalid data. After success, the device will return confirmation message to the sender: INVALID DATA UPLOAD：ON. At this time, whether received GPS data are valid, they will be uploaded to the server.

If X=0, the device will turn off the function of uploading invalid data. After success, it will return confirmation message: INVALID DATA UPLOAD: OFF. At this time, invalid data upload will be turned off and only valid data will be uploaded.

Note: 1. Default setting is turning off invalid data upload.

2. The function is available for GPRS mode only.

12. Instruction to change time zone setting in GPRS mode

Instruction format: 897 + user password 4 digits + D + NN

For example: 8970000E08

Description: After receiving the instruction, TLT-8Awill return confirmation message: TIME ZONE SET OK,CURRENT：DN（For example: TIME ZONE SET OK,CURRENT：E8）.

Note 1. D takes E or W to indicate east or west time zone. NN takes a 2-digit number (1-12) to indicate time zone number.

2. If successes to set 8970000E08, GPRS data upload time will be GPS time plus 8. If successes to set 8970000W07, GPRS data upload time will be GPS time minus 7.

3. Default value is Greenwich Time (UTC).

4. The instruction is available for data upload in GPRS mode only.

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Instruction set

1. Status and corresponding signs

Status	Corresponding signs
666 single request	SMS
Phone positioning	CALL
Accept calling	ANSWER
Active seeking help	SOS
Quit from fence	OS
Enter fence	RS
Overspeed alarm	OVERSPEED
Safe speed	SAFESPEED
Historical data upload	STORAGE
Low power alarm	LP
806 single positioning	SMS
Moving vehicle tracking timing upload	AUTO
Timing upload for parking throttle	AUTOLOW
Trailer alarm	TOWED

2. Instruction set

Instruction	Description
003+user passwordE/Wxxxx.xxxxN/Syyyy.yyyyRzzz.z	Fence scope setting(unit: degree, minute)
004+user passwordE/Waaa.aaaaaN/Sbb.bbbbbRzzz.z	Fence scope setting(unit: degree,minute)
005+user passwordRzzz.z	Fence scope setting(current position coordinate)
006+user password,Gx,I/O,E/W+N/S,E/W+N/S	Fence scope setting(unit: degree)
008+user password+Rzzz.z	Set and start displacement alarm instruction
009+ user password	close displacement alarm
080+user password	Close invalid data upload under GPRS mode
081+user password	Open invalid data upload under GPRS mode
090+user password	Instruction for closing ACC status shift
091+user password	opening ACC status shift
100+user password	Open electricity saving function
111+user password	Single return base station information
#122#user password#X##	Overspeed alarm setting

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120+user password	closing vibration control
121+user password	opening vibration control
140+user password	Closing distance statistics
141+user password+IX	Start distance statistics and interval upload setting
142+user password+MX	Initial value of distance statistics and zero clearing setting
143+user password	Read distance statistics
150+user password	Close calling
151+user password	Start calling
170+user password	Start calling limit
171+user password	Close calling limit
180+user password	Close trailer alarm
181+user password+TX	Start trailer alarm and set vibration time
210+user password	Close round fence
211+user password	Start round fence
222+user password	Start GPS
310+user password	Close all square fence
310+user password,Gx	Close single square fence
311+user password	Start all square fence
311+user password,Gx	Start single square fence
333+user password	Close GPS
4xx+user password	Timing return positioning information
55x+user password	Set returning base station quantity
665+user password+HHMM	Set daily timing report
665+user password+OFF	Close daily timing report
666+user password	Single positioning return user number
667+user password	Return Chinese position information
667+user password+MAP	Return Chinese address and screenshot
667+user password+MAP,WWW,HHH,ZZ	Return Chinese address and screenshot
668+user password	Return Google map screenshot link
668+user password，WWW,HHH,ZZ	Return Google map screenshot link
669+user password	Return map link
700+user password	SMS mode
710+user password	GPRS mode
777+new user password+old user password	Change user password
*prestored number*user password*sequence**	Change pre-stored number
#801#user password#new user name##	Change GPRS user name
#802#user password#new service password#old service password##	Change GPRS service password
#803#user password#APN##	Set GPRS access point
#803#user password#APN#APN user name#APN password##	Set GPRS access point

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#804#user password# fixed IP address and port##	Set IP address and port number
#805#user password#sampling interval T# upload quantity each time##	Set timing upload mode for Moving vehicle tracking
#806#user password##	Single request uploading current position
#807#user password#X##	Set historical rewire sampling rate
#808#user password#24##	Upload 24h historical data
#808#user password##	Upload all historical data
#809#user password#x#y##	Set timing upload mode for Parking throttle
#819#user password#upload interval	Upload interval under shutoff mode
896+user password+D+NN	Set time zone
897+user password+D+NN	Set GPRS time zone

Warranty

The following after services are provided in order to serve and satisfy the customers:

Ⅰ. Warranty scope:

1. The product may be replaced free of charge within 30 days since purchase in the event that it is ineligible when normal operation (man-made sabotage excluded) and without dismantlement.

2. The product will be maintained and repaired by V-SUN free of charge within one year after purchase if it meets with trouble in normal operation due to ineligible quality and without dismantlement.

3. The product shall be repaired upon payment beyond warranty period.

4. The product shall be repaired after the authorization of V-SUN.

Ⅱ. Exemption clauses

1.Any damage or malfunction of fittings incurred by user's improper operation, maintenance, or storage;

2. Any damage or malfunction caused due to majeure such as rain, natural disaster, etc.

The instruction manual subjects to successive update without prior notice. Please contact our sales manager or technicians if needed.

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